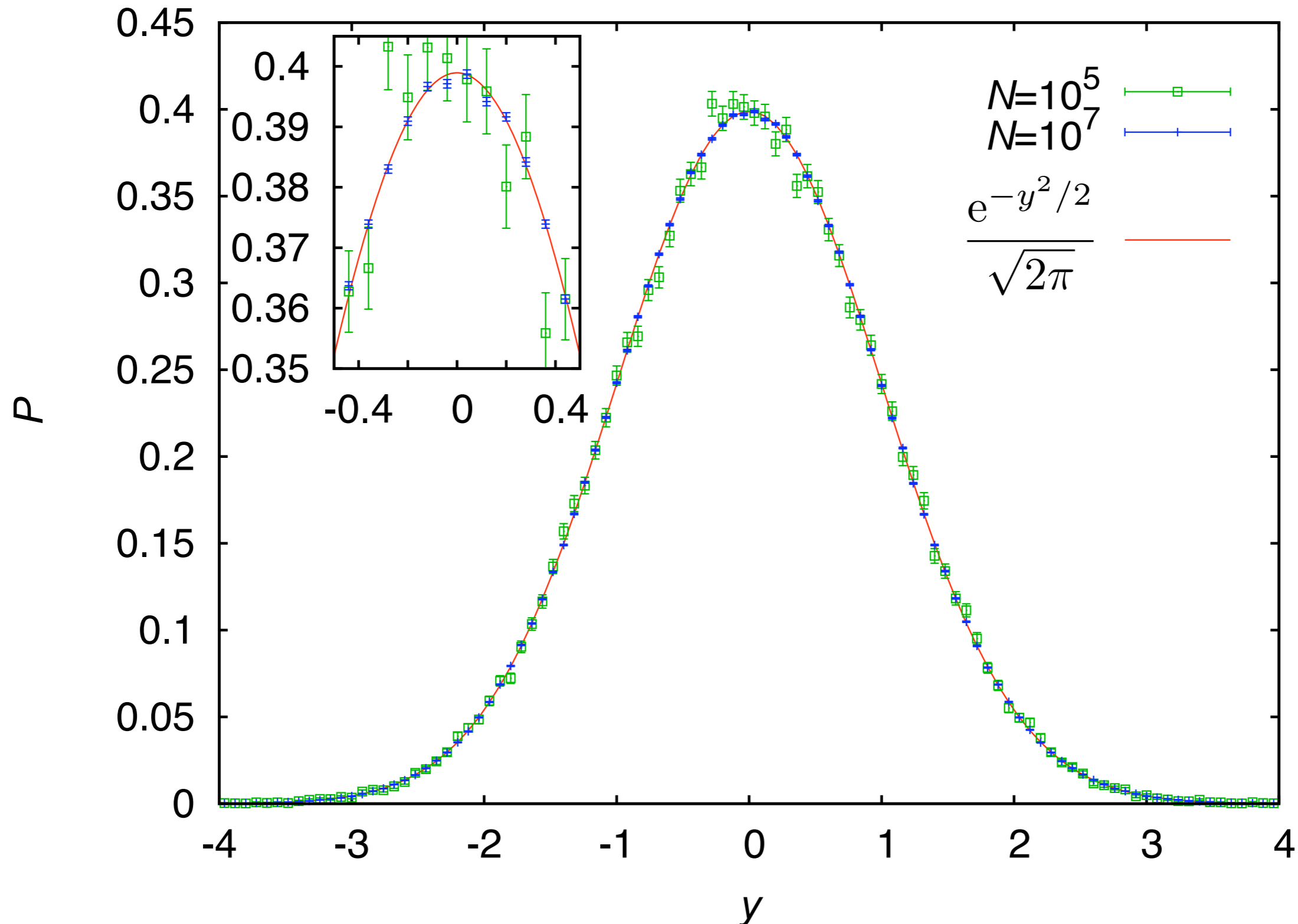


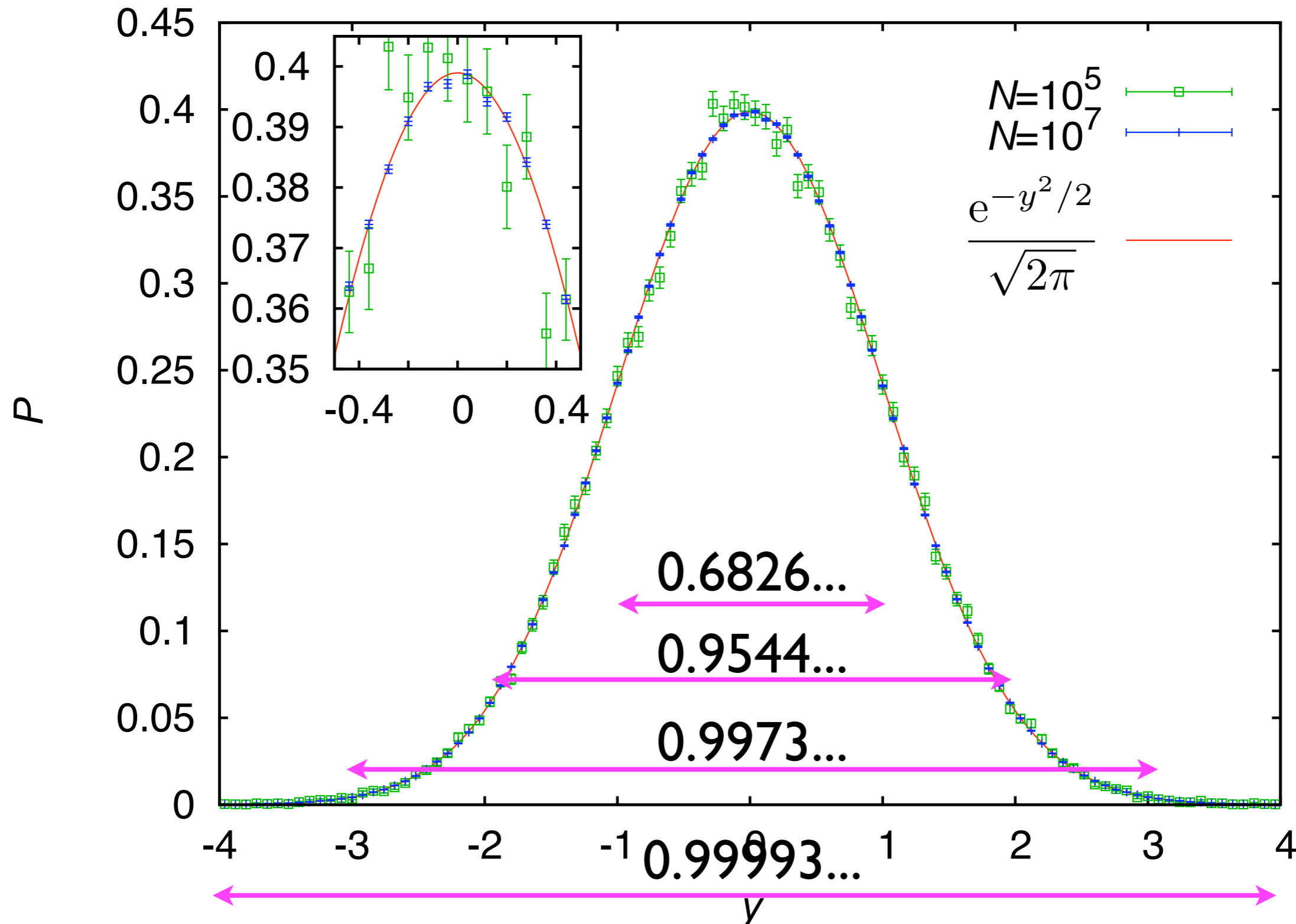
Aufgabe 10.1.: Gauß-Verteilung

$$y_1 = \sqrt{-2 \ln x_1} \cos(2\pi x_2), \quad y_2 = \sqrt{-2 \ln x_1} \sin(2\pi x_2)$$



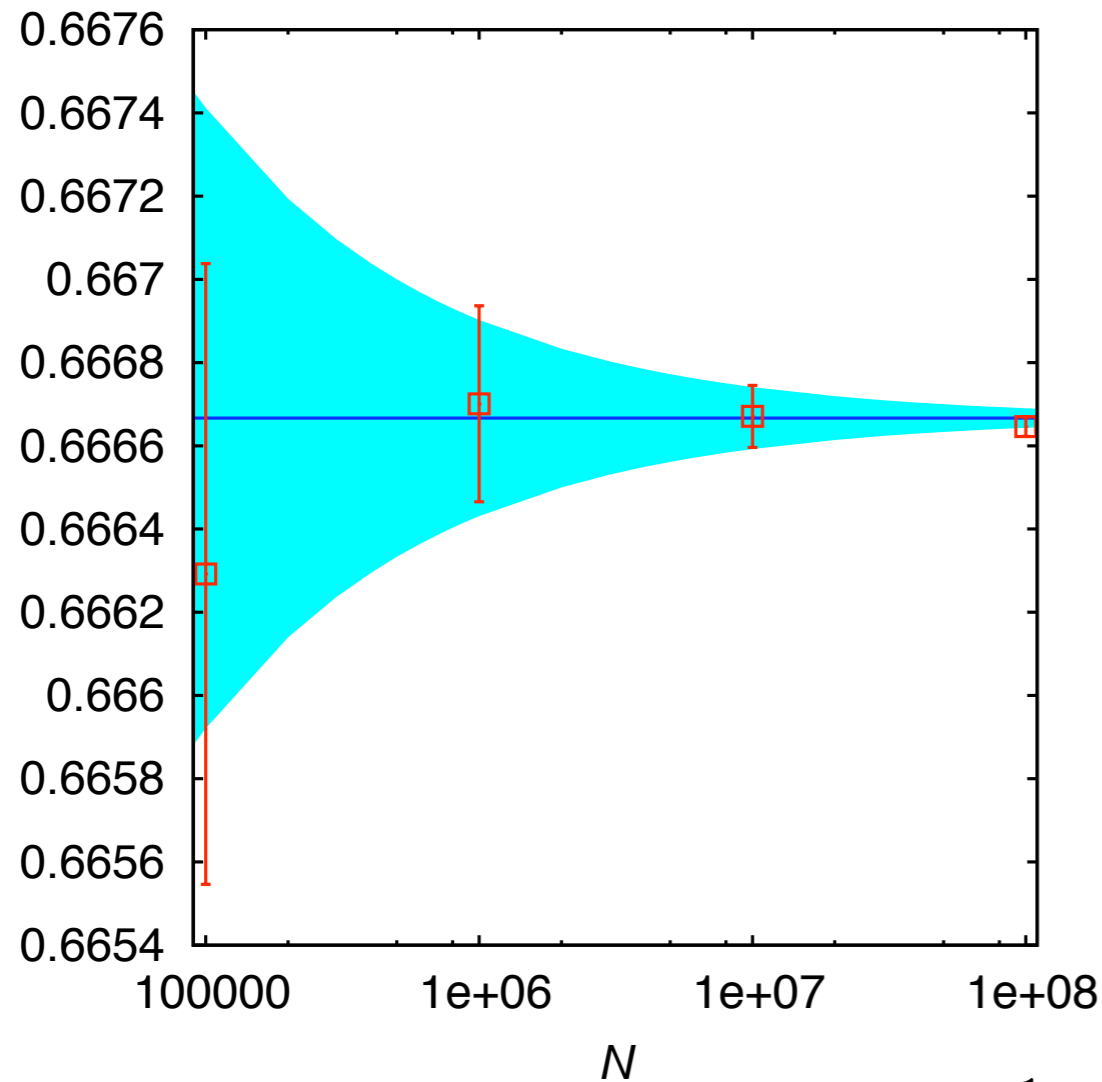
Aufgabe 10.1.: Gauß-Verteilung

$$y_1 = \sqrt{-2 \ln x_1} \cos(2\pi x_2), \quad y_2 = \sqrt{-2 \ln x_1} \sin(2\pi x_2)$$

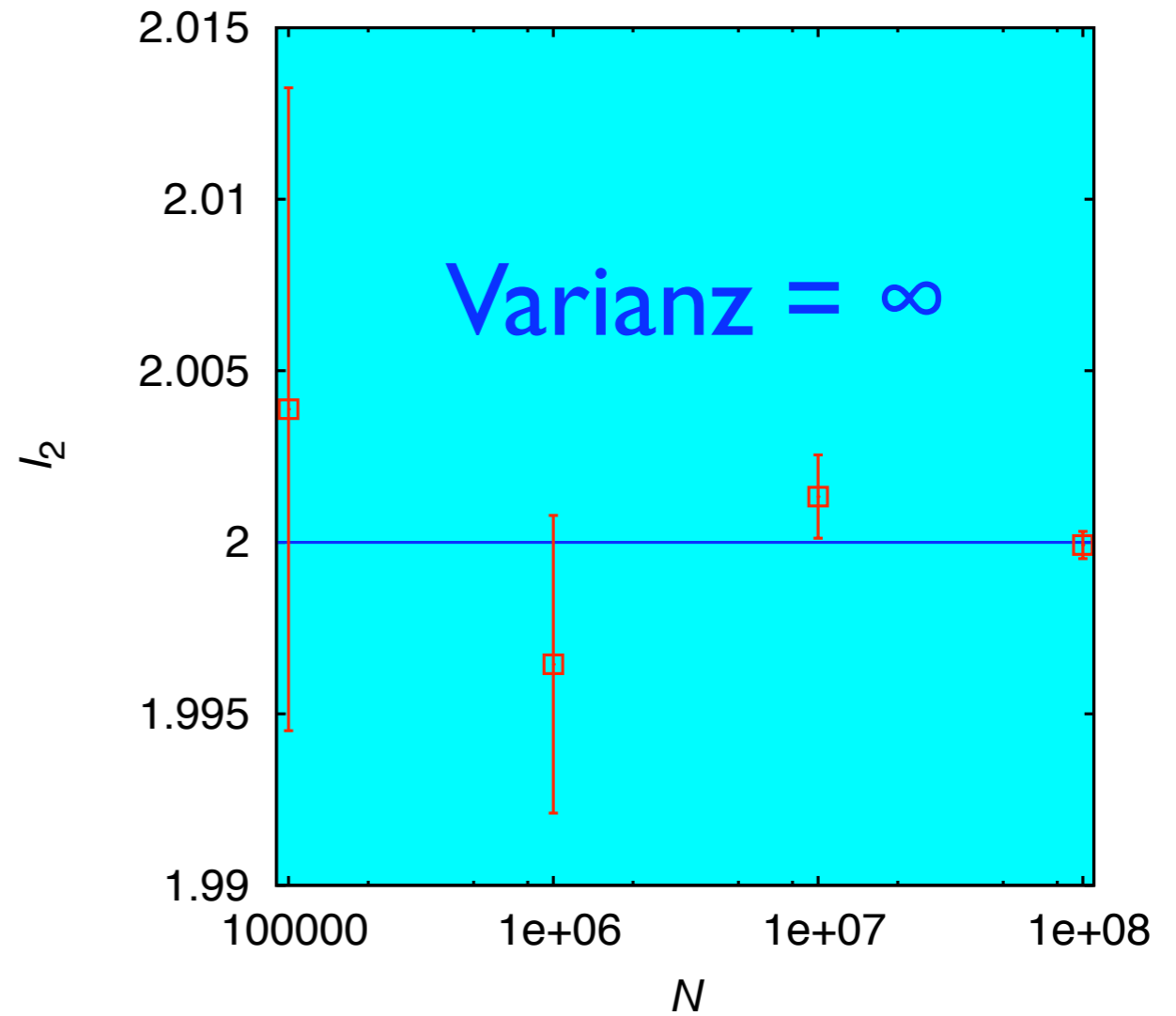


Aufgabe 10.2.: 1D Integrale

$$I_1 = \int_0^1 dx \sqrt{x}$$



$$I_2 = \int_0^1 dx \frac{1}{\sqrt{x}}$$

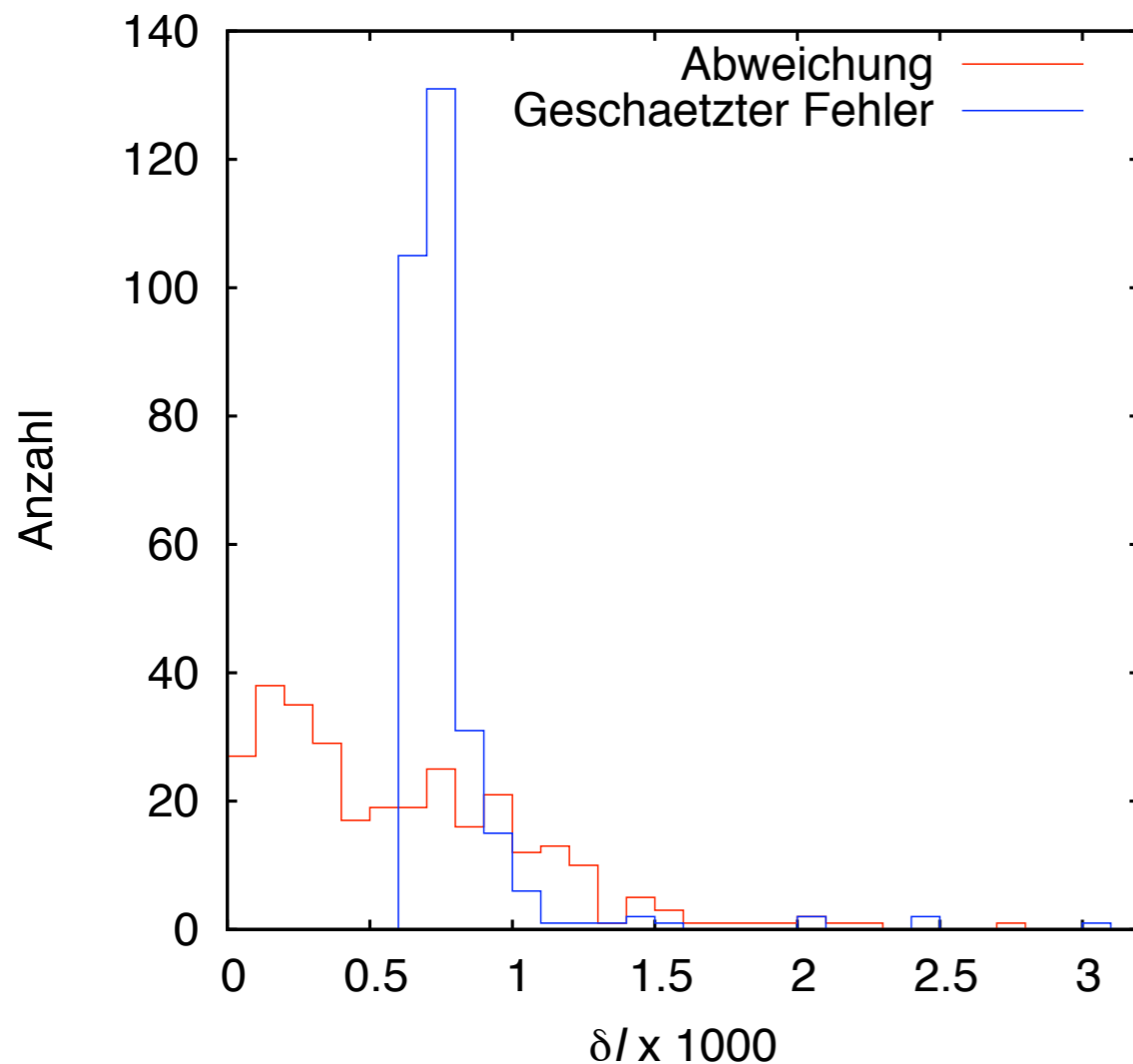


$$I_3 = \int_0^1 dx 1 = 1 \pm 0 \quad (\text{Varianz} = 0)$$

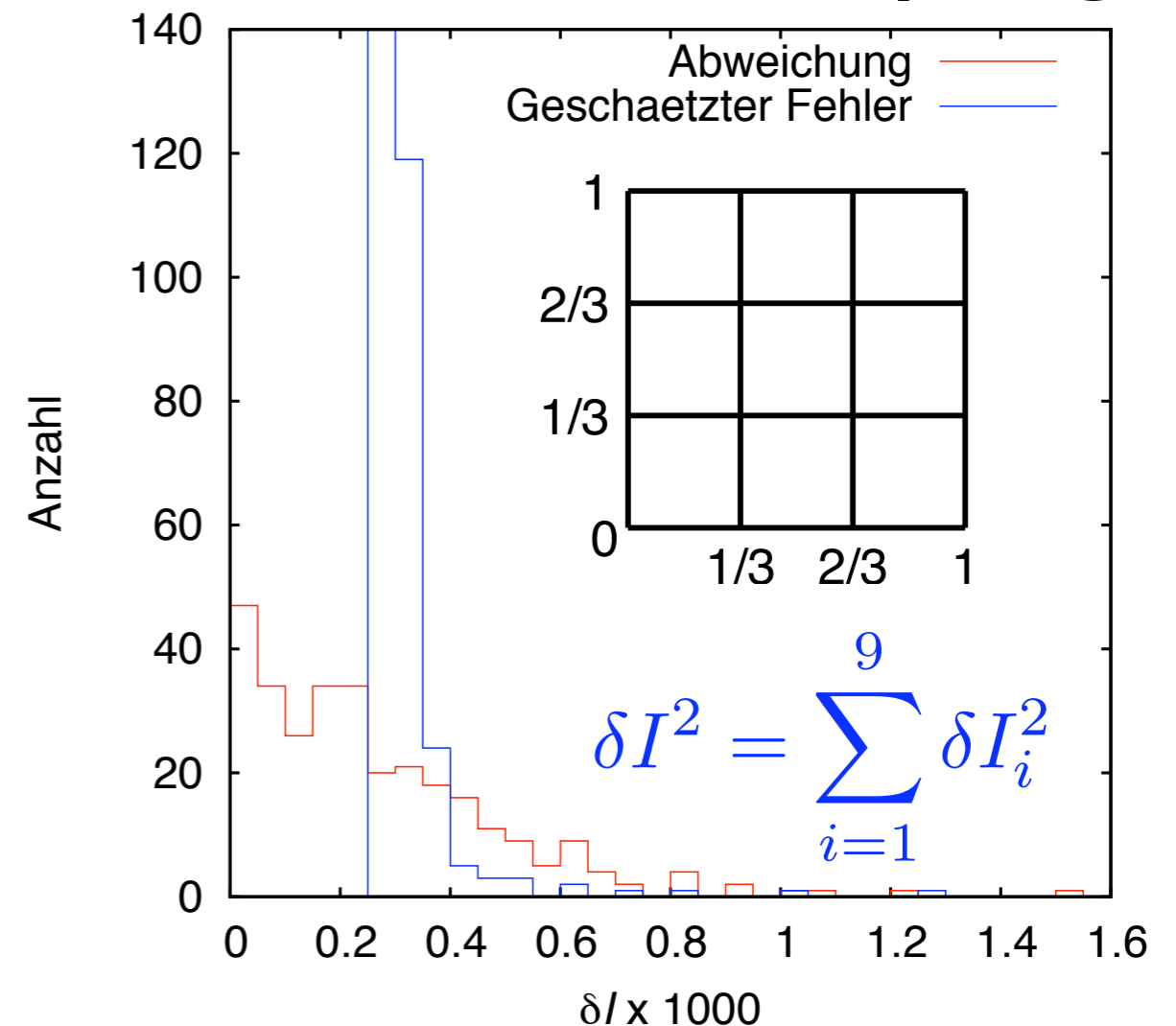
Aufgabe 10.3.: 2D singuläres Integral

$$I = \int_0^1 dx \int_0^1 dy \frac{1}{\sqrt{\left(x - \frac{1}{2}\right)^2 + \left(y - \frac{1}{2}\right)^2}} = 3.525494348 \dots, \quad N = 10^8 \text{ Punkte}$$

Einfache MC



Stratified Sampling



⇒ $\approx 2.4\times$ bessere Genauigkeit bei \approx gleicher CPU-Zeit